Economic analysis of fertilizer options for maize production in Tanzania

Bekele Kotu[1], Job Kihara[2], Yangole Luanda[3], Stephen Lyimo[3], Mateete Bekunda[1], Irmgard Hoeschle-Zeledon[1]
[1]International Institute of Tropical Agriculture, [2]International Center for Tropical Agriculture [3]Selian Agricultural Research Institute-Tanzania
Contact: b.kotu@cgiar.org

Challenges & Study objective

- ✓ The little use of inorganic fertilizer in Tanzania has hampered productivity growth among the smallholder farmers.
- ✓ This is partly because of the negative attitude of farmers towards inorganic fertilizers
- ✓ Soil fertility management options (including inorganic fertilizers) have been experimented by the Africa RISING team in Babati and the results show that most of the new options are better than the farmers traditional practice in term of grain yield.
- ✓ However, the economics of these soil fertility management options is little known.

Main study objective: The objective of this study is to compare different fertilizer options in terms of financial benefits in maize production.

Introduced technologies

(i) Diammonium Phosphate (DAP)
(ii) Minjingu rock phosphate (MG)
(iii) Minjingu Mazao (MM)
(iV) Minjongu Mazao+ farm yard manure (3t/ha)
(v) Farm yard manure only (6t/ha) (FYM)

Evidence

Table 1: Financial benefit of fertilizer options

	Productivity	Economic	
	Value of grain ($/ha)	Value cost ratio	Returns to labor ($/person day)*
DAP	1565	15.9002	13.9033
MG	1272	9.1719	10.3002
MM	1417	8.8423	11.6190
MM+FYM	1264	6.7071	9.0600
FYM	846	2.9765	3.8757

Note: The result is based on the experiment conducted from 2014-2016 in four villages of Babati District;
*Minimum wage rate for agricultural services during 2013-2016 was about $1.75 per day

Approaches of taking the technologies to scale

Scaling may follow the mainstream extension system supported by R&D platforms. Targeted subsidies may also enhance adoption of the fertilizer but this should be done with a clear exit strategy.

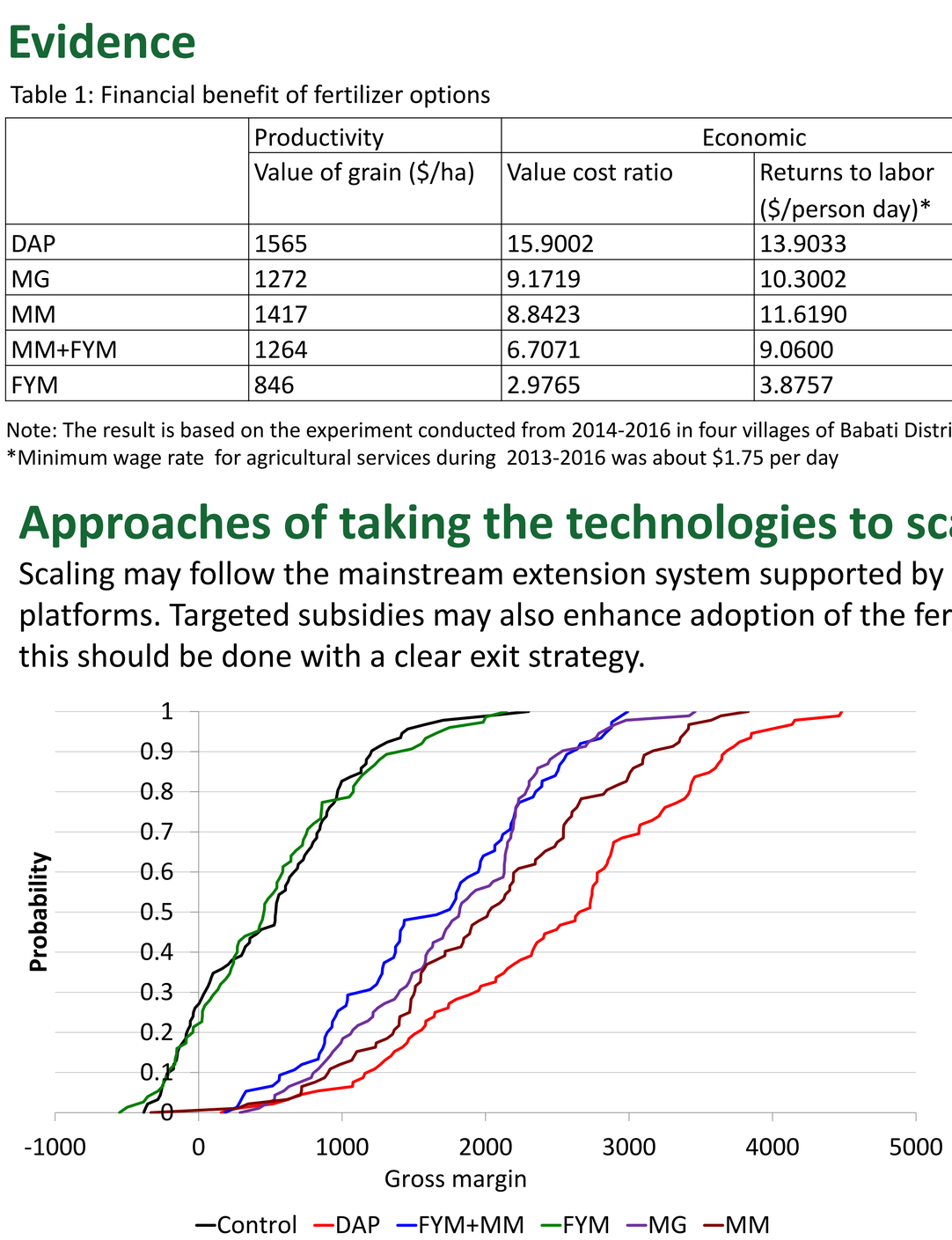

Figure 1: Cumulative distributions of gross margins for fertilizer options

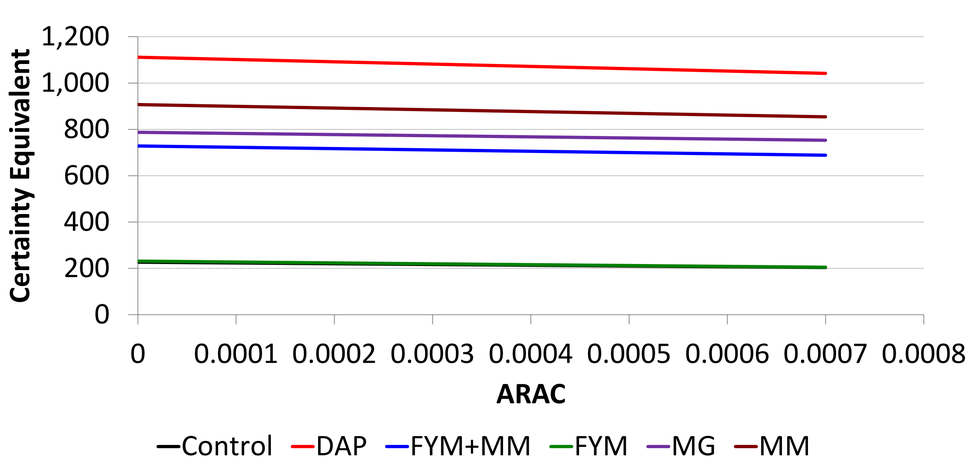

Figure 2: Risk-adjusted gross margin of fertilizer options

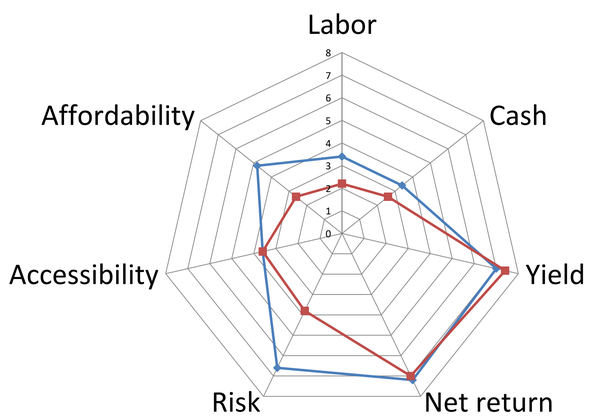

Figure 3: Multidimensional farmers' assessments of DAP and Minjingu Mazao

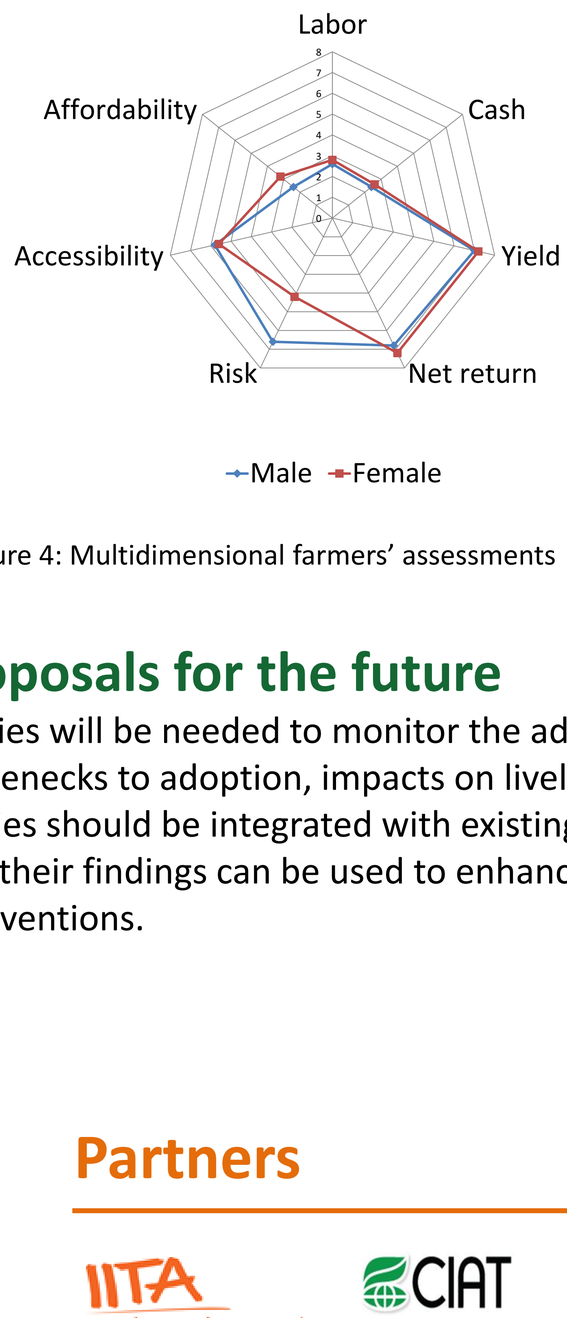

Figure 4: Multidimensional farmers' assessments of Minjingu Mazao

Proposals for the future

Studies will be needed to monitor the adoption of the technologies, bottlenecks to adoption, impacts on livelihoods of the farmers. These studies should be integrated with existing interventions in such a way that their findings can be used to enhance the success of the interventions.

Partners

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